THE RELATIONSHIP BETWEEN SELF-EFFICACY AND SELF-INVESTMENT BEHAVIORS

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Abstract

Ever since the dawn of behavioral economics, researchers have paid attention to psychological factors to explain complicated economic behaviors. While a considerable body of research has mainly focused on financial investment behaviors, there is a lack of understanding of self-investment behaviors. The present study investigated not only the relationship between financial self-efficacy and five financial investment behaviors (savings, shares, properties, charities and student debts), but also the relationship between self-efficacy and five self-investment behaviors (beauty, hobbies, education, travelling and entertainment & socialization). The results showed that general self-efficacy is positively correlated with investment in shares, charities and negatively correlated with entertainment. Financial self-efficacy is correlated positively with investment in savings, student debt and negatively correlated with shares. Furthermore, whether people had a partner significantly influenced financial investment and self-investment percentage. A gender difference was found in saving behaviors and body/beauty investment. Findings extend prior research on investment behaviors with regard to financial investment and self-investment, and the role of self-efficacy and financial self-efficacy in investment behaviors generally.

1. Background

From the 1990s, economists have recognized that an individual is not a perfectly rational person and human beings do not act like as economists have predicted. Because traditional economics cannot explain actual economic behaviors fully, behavioral economics came into being. With the advent of behavioral economics, the diversity of economic behaviors took into account psychological factors. According to existing research, investment decisions are influenced by demographic variables, emotional processes, cognitive bias and individual personality traits (Gambetti & Giusberti, 2018; Mak & Ip 2017; Nofsinger, 2018). In order to understand investment behaviors and improve decision-making, it is helpful to understand investors' psychological factors. Among those psychological factors, financial self-efficacy has been shown to be positively related to financial behaviors and financial well-being (Gutter & Copur, 2011; Lim, Heckman, Phillips Montalto & Letkiewicz, 2014; Xiao & O'Neill, 2016).

Previous studies have mainly focused on investment choices for financial capital. People put their money into financial investments, such as savings in the bank, shares, properties, and other investments. Many studies have compared different types of financial investment decisions and analysed investors' psychological biases (Frydman & Camerer, 2016; Sahi, Arora & Dhameja, 2013; Zahera & Bansal, 2018). Abundant studies in Malaysia, the Middle East, western countries and Asian countries have demonstrated that investors' psychological factors have an impact on their decisions in the stock market (Alquraan, Alqisie & Al Shorafa, 2016; Bakar & Yi,

2016; Bitok, Kiplangat, Tenai & Rono, 2011; Keller & Pastusiak, 2016; L & Y, 2011). Earlier literature indicated irrational financial behaviors were correlated with investment judgment biases, such as mental accounting, investors' overconfidence, availability bias, representativeness, narrow framing, risk tolerance and disposition effect (Jain et al., 2015). To some extent, these psychological biases result in negative outcomes from financial decisions (Nofsinger, 2017, pp.1-13). The literature has focused on financial investment behaviors, and has found gender differences, financial risk tolerance and preferences to affect financial investment choices. However, in addition to financial capital, one can also invest in human capital. Human capital is important for national long-term economic development and well-being according to the Lisbon Council (Ederer, Schuller & Willms, 2011). A study in Turkey (Owings, Kaplan & Pirim, 2012) suggested that labour skills and human capital investment accounted for nearly two-thirds of the value of modern industrial economies. Half the Turks supported the proposition that education was an important investment for the government. Families are units of a country. Family education investment, as a kind of human capital investment, has a great impact on children's development and learning ability. One study (Yurk Quadlin, 2015) suggested that family education investment was correlated with children's language performance because the more parents invested in education, the more educational resource children received.

In this thesis, I use the term self-investment to indicate that an individual spends money, time and energy in some activities to increase his or her personal value and

expects the activities to bring some returns, such as wealth, personal future development, positive relationships with others, valuable experiences and positive emotions. Thus, return is broadly defined. Education could be regarded as a self-investment choice in this study. Apart from education, travel, bodily investment (for example, in one's physical appearance), entertainment and hobbies are also regarded as self-investment options. There is limited literature on the relation between individuals' psychological factors and their self-investment behaviors. To further this research, the study also investigates self-investment choices, and explores some of the independent variables that might influence self-investment options. Thus, the correlations between financial self-efficacy and general self-efficacy, and the influences of gender, education levels, partner status and age are also considered in this research.

2. Review and hypotheses

2.1 Self-efficacy

In behavioral psychology, self-efficacy is a concept indicating that individuals' belief in their ability to deal with and succeed in a task or a challenge promotes the investment of mental effort (Bandura, 1982). Self-efficacy can be enhanced through past successful experience and existing experience, resulting in more investment in effort (Bandura, 1997). Self-efficacy is not about whether an individual is intelligent or a person is good at some work, rather it means that individuals believe they are competent in a task or challenge and have confidence in their capability. Therefore,

self-efficacy is more of a self-constructed personal perception than an actual ability and sometimes there is a difference between a person's self-efficacy and the person's abilities (Seifer & Sutton, 2011, p. 117). Generally, self-efficacy was considered a superior predictor of final performance than current performance capability by Bandura (Forbes & Kara, 2010).

Self-efficacy has been shown to influence many human behaviors, such as career development (Abele & Spurk, 2009; Cherian & Jacob, 2013), teachers' job satisfaction (E. M. Skaalvik & S. Skaalvik, 2010, 2014), students' academic achievement (Komarraju & Nadler, 2013), student burnout and performance (Breso, Schaufelt & Salanova, 2011), motivation achievement (Lunenburg, 2011; Yusuf, 2011), clinical practice (Kakudate et al., 2010) and work performance (Tims, Bakker & Derks, 2014; Walumbwa et al., 2011). The expectation of self-efficacy determines whether a person makes a corresponding effort in the face of tasks and challenges and how long effort will persist when difficulties are encountered (Stajkovic & Luthans, 1998).

Some evidence has suggested that self-efficacy is correlated with financial behaviors. One study (Lown, Kim, Gutter & Hunt, 2015) used an online survey among middle and low income households with participants aged from 24-66 years old to explore the relationship between general self-efficacy and savings behavior. The result showed that participants who had low self-efficacy were 60 percent less likely to save money than those with high self-efficacy scores after controlling for the variables of age and income level. The study also suggested that using a financial self-efficacy scale might lead to a stronger relationship with savings. Another study (Rahmawati &

Asandimitra, 2018) used the concept of financial self-efficacy (FSE) and supported the suggestion. The study collected data by questionnaire from 220 subjects aged from 15 to 64 years old in Surabaya. The result revealed that FSE was positively correlated with savings behaviors.

Furthermore, self-efficacy is related to health-care investment, which is a kind of self-investment behavior. One study (Kakudate et,al., 2010) indicated that self-efficacy was positively correlated with the frequency of brushing teeth in children. It showed that self-efficacy was a predictor of the number of decayed teeth among children, and suggested that improved self-efficacy might be an effective behavioral intervention for their self-care habits and oral hygiene. A cross-sectional study by Ericsson, et al. (2016) enrolled 506 Swedish 19-year-old subjects to explore whether gender, education, general self-efficacy, native country and parents' education level are related to health investment behaviors. The results indicated that the evaluation of self-efficacy was an effective method to predict oral self-care behavior in periodontal treatment and individuals with higher self-efficacy were more likely to have positive health investment behaviors. Another study (Dumitrescu, Dogaru, DuĠă, I. Zetu & L. Zetu, 2014) found that high self-esteem was correlated with high frequency of teeth brushing. Therefore, it is reasonable to expect that individuals would have more beneficial self-investment behaviors if they have a stronger sense of self-efficacy.

2.2 Financial self-efficacy (FSE)

FSE is a type of specific self-efficacy in the financial area. FSE means the belief in one's personal ability to achieve one's financial goals and manage one's financial products and services. The more general concept of self-efficacy proposed by Bandura is universal and predictive but also has limitations. Mindra, Moya, Zuze, and Kodongo (2006) pointed out that some literature showed self-efficacy to be a weak predictor of risky financial behaviors, and considered the weakness was because of the application of a general self-efficacy scale rather than a domain-specific scale. FSE was proposed to explore and predict how confident an individual is of one's financial behaviors, such as financial management, financial investment and financial services, and how strong the belief is in one's specifically financial ability. This study also suggested that several scholars concluded that FSE might be the link between financial knowledge and financial behaviors. A person with higher FSE is more confident with financial behavior and one's financial capability, leading to more positive financial actions. Qamar, Khemta and Jamil (2016) pointed out that the financial management behavior was positively related to FSE and FSE had a positive regulation effect on the relationship between the financial management behavior and attitude to money. Moreover, a study (Mindra, Moya, Zuze & Kodongo, 2017) in Uganda revealed that FSE was positively correlated with financial inclusion. An individual with higher FSE was likely to use more financial products and services. Another study by Gamst-Klaussen, Steel and Svartdal (2019) indicated that the relationship between procrastination and negative financial behavior was mediated

by FSE. The result suggested that low FSE may be a crucial reason why individuals have negative financial behaviors and outcomes. A study (Xiao, Chatterjee & Kim, 2014), exploring financial independence among young adults ranging from 18 to 23 in America, suggested that higher economic self-efficacy resulted in higher financial independence.

Furthermore, age is a demographic factor that influences FSE. Some evidence in America (Asebedo, 2019; Asebedo, Seay, Archuleta & Brase, 2018) indicated that elderly people had weak and decreasing FSE. Amatucci and Crawley (2011) supported the idea with women entrepreneurs as subjects, finding that age was significantly correlated with FSE.

FSE is not only related to one's financial situation, but also to a valid way for improving one's financial situation, because increasing FSE resulted in seeking more financial assistance (Lim, Heckman, Phillips Montalto & Letkiewicz, 2014). This research also suggested that students who at least seek one financial advisor or counselor for help were classified in help-seeking group reported they spent more money on student loan, which means the amount of student loan debt was positively correlated with help-seeking behavior.

The relationship between financial self-efficacy and financial investment behaviors

Several studies have focused on the correlation between FSE and financial behaviors. A study in Australia (Vyvyan, Blue & Brimble, 2014) explored various factors that promote or inhibit financial capability by conducting focus groups with financial counselors. This research pointed out that positive beliefs about financial situation

and future were considered positive impacts on financial behaviors, because beliefs affected attitudes, which in turn affected behaviors. In this paper, it indicated self-confidence or esteem, which was the core in the term of FSE, played an important role in financial effective behaviors. In other words, people with higher self-confidence were likely to increase their financial capability but the study did not mention what specific financial behaviors subjects prefer.

Farrell, Fry and Risse's research (2015) investigated the correlation between the level of female financial self-efficacy and personal finance behaviors, suggesting that women who had higher financial self-efficacy preferred savings accounts and were less likely to choose debt-related products. Individuals with a stronger sense of confidence in themselves had a high level of self-efficacy in their financial affairs and were prone to solve their financial problems or face challenges rather than avoiding difficulties. Another study (Montford & Goldsmith, 2016) supported this point. This study enrolled 182 US student subjects to explore the effect of financial self-efficacy in the link between the gender difference and financial risk tolerance. Researchers believed that FSE was not only influenced by financial literacy and knowledge but also correlated to personality, family history, social and cultural factors. The result showed that higher FSE was correlated with a higher risk level of financial portfolio. To some extent, the reason why women had lower risk tolerance and they were more likely to make conservative investment choices was that females had lower financial self-efficacy than males. Asebedo and Seay (2016) explored the relationship between FSE and savings behavior among 847 pre-retirees people aged 50 - 70 years

old in America, finding that FSE was positively correlated with savings behavior after controlling for the variable of saving motivation and financial ability.

2.3 Investment behaviors

Plenty of research has focused on financial investment behaviors. A systematic literature review (Kumar & Goyal, 2014) suggested that men were overconfident and prone to engage in excessive trading. Educated and wealthy people balance their investment portfolios more rationally because they were less likely to be affected by investment allocation. Bannier and Schwarz (2018) examined the relationship between financial knowledge and wealth, suggesting that higher financial literacy was correlated with more wealth for both males and females. For women, a higher education level enhanced the relationship but not for men. In addition to financial knowledge, financial counselors considered that confidence, self-esteem and self-belief were also crucial determinants of financial ability (Vyvyan, Blue & Brimble, 2014). Using a focus group method in Queensland, Australia, with the participation of financial counselors, researchers explored factors that inhibit and enhance financial capability. The results showed five categories, including background factors, attitudes, normative influences, perceived behavioral control and skills and knowledge, which influenced financial capability. Moreover, some factors were identified in each category. Prominently, self-confidence was the core of financial competence. Self-confidence or self-esteem was a factor under the category of perceived behavioral control, which was reported to be relevant to investment

behaviors.

People spend money, energy and time on behaviors that make themselves more valuable both physically and mentally and earn them a better future, which are called self-investment behaviors in this study, such as future education, learning new skill sets, fitness, health and beauty investment (especially for women). According to the definition of self-investment by Vaccaro (2005), self-investment is a new educational concept, which means “the valuing of oneself enough to believe that personal growth, learning, and education is not merely needed but deserved” (p. 114). Warren Buffett (2008) said: “The best asset is your own self. ” However, not many people invest themselves after formal education (White, 2017). An article by White (2017) suggested “only 54 percent of Americans in 2008 reported having read a book in the previous year” via the Survey of Public Participation in the Arts conducted by the National Endowment for the Arts.

Education is an important part of self-investment, which is helpful for an individual to determine their career and develop personal potential. From education, a person forms a set of specific knowledge and also develops a mode of thinking. A study (Jenkins, 2005) showed that further education or further academic study was a common choice for those individuals who have recently completed a degree or diploma. Beyond that, people also invested their time and money in other ways, such as traveling, body investment and social activities. Cash, Morrow, Hrabosky and Perry’s cross-sectional study (2004) recruited 3,172 college women and men from 1983 to 2001 in 22 studies via the same standardized assessment at Old

Dominion University in America. The result showed that the investment in appearance and engagement in body-management for women were decreasing. Compared with females, male body-image evaluation and investment were stable.

Clothing, as a way of appearance investment, has not been much studied to date. Nevertheless it is an important part of body investment for females, no matter how old they are (Tiggemann & Lacey, 2009). Some evidence suggests that girls make a greater body image investment than boys. Smolak's study (2004) indicated that the gender difference in body investment may due to the difference of definition on self-body for males and females. A review (Jarry, Dignard & O'Driscoll, 2019) showed that a gender difference was found in the appearance investment but there is a lack of longitudinal or experimental research regarding appearance investment as a dependent variable. The findings about appearance investment are still limited.

In New Zealand, the New Zealand Medical Association (NZMA) proposed "Health as An Investment" as a position to encourage New Zealanders to invest more money and time in health because health is a positive investment in productivity, welfare and the national economy. It is a long-term development initiative for personal well-being too (Metcalfe, Gunasekara, Baddock & Clarke, 2017).

2.4 The relationship between self-efficacy and self-investment

As Benjamin Franklin said: "If a man empties his purse into his head no one can take it away from him. An investment in knowledge always pays the best interest" (Stevenson, 1967). Much evidence suggests a correlation between education and

self-efficacy and shows that self-efficacy influences learning, motivation, self-regulation, and academic abilities and achievement (Schunk & DiBenedetto, 2016). This review also indicated that self-efficacy was positively correlated to educational outcomes and learning performance. Compared to students with low self-efficacy, the stronger self-efficacy students had, the harder they work, the longer they persist, the more interested they are in learning, and the better outcome they achieve. Moreover, the review considered cultural factors, suggesting that students from a non-Western group (Asian students) had lower self-efficacy than those from a Western group (Canada, United States) while non-Western students had less over-confidence in their academic performance and more accurately predicted learning outcomes. Also, research has revealed that self-efficacy was a predictor or mediator for students' learning, motivation and achievement (Dinther, Dochy & Segers, 2011). Cobb-Clark, Kassenboehmer and Schurer (2014) pointed out that those people with internal sense of control and belief invested more in health because the investments could transform into good health so they had higher returns. Among these people, females invested more in their health than males.

2.5 Scales

According to these conclusions, it is rational to predict self-efficacy is correlated with self-investment behaviors. The aim of this paper is to investigate the correlation between self-efficacy and self-investment behaviors and to investigate what kinds of self-investment behaviors people choose. Psychometric scales are used to measure

an individual's self-efficacy and self-investment choice, exploring whether the relationship is positive. Moreover, according to a study (Fung & Durand, 2014) about how investors' personality affected their investment behaviors (mainly referring to financial investments), demographic factors, such as gender and age, turned out to be important to explain investors' behaviors.

2.5.1 General self-investment Scale (GSES)

The original German version of the general self-efficacy (GSE) scale was developed in 1979 by Matthias Jerusalem and Ralf Schwarzer (Schwarzer & Jerusalem, 1995). In 1981, the number of items was decreased from 20 to 10 and gradually this scale was adapted to 28 languages (Scholz, Doña, Sud & Schwarzer, 2002). A series of reviews and studies have investigated the construction and validation of the GSE scale and explored whether this instrument is valid in different cultural backgrounds. One such study (Scholz, Doña, Sud & Schwarzer, 2002) reviewed psychometric findings with 19,120 participants from 25 countries. This study aimed to demonstrate that the measure corresponds to only one dimension across cultures, using data analyses to explore the internal structure, item-total correlations, factor loadings and reliability of GSE scale in 25 samples. The result indicated that the GSE scale was a universal and unidimensional construct across countries. Moreover, this paper and an AFCPE conference paper (Lown, 2011) pointed out that the GSE scale has proven stable in many longitudinal studies and the Cronbach's alphas of the GSE scale range from .75 to .90 over 30 countries. Another study (Luszczynska, Scholz, and Schwarzer, 2005)

also supported this conclusion. The meta-analysis examined 1,933 subjects aged 16 - 86 years old from Germany (n = 633), Poland (n = 359) and South Korea (n = 941) to explore the relationship between self-efficacy and health behaviors, outcome expectancies, implementation intentions, well-being and self-regulation and other variables and also tended to confirm the validity of the GSE scale. In this study, some participants were under pressure, such as patients with coronary heart disease or cancer. Previous researchers had pointed out that outcomes may vary according to economic development and social situations, so this study included three countries with different levels of economic development and political environment. The consistent findings between self-efficacy and these variables indicate the validity of this instrument. In short, the GSE scale seems universal and stable.

2.5.2 Financial self-investment scale (FSES)

The FSES used in this thesis was developed by Jean M. Lown in 2011. This scale was adapted from Jerusalem and Schwarzer's (1995) General Self-Efficacy Scale.Lown's study pointed out that financial knowledge and financial education were not enough to improve financial capability and cause behavioral changes. People need additional tools to recognize their financial behavior biases and to improve their behaviors. Based on the idea that self-efficacy influences consumers' behaviors, there was a need to specialize the term self-efficacy and develop a scale that measures a specific financial self-efficacy, which would help consumers, educators, counselors, and advisors to improve financial management and make more rational decisions. Items

were developed from 6 of the GSES items. Higher scores correspond to a stronger belief that subjects can manage their financial affairs and they are more confident in their financial capability. Measurement study (Lown, 2011) was conducted with 726 university employees online in November 2009. Cronbach's alpha was used to measure internal consistency reliability and the result was .76. According to the factor analysis, loadings ranged from .574 to .759. FSES not only offered a tool to teaching staff and counselors to instruct and educate their students and clients, but also provided a measure for researchers to assess a factor that influences financial management and behaviors.

2.5.3 The investment options scale

This scale was self-designed to measure the percentage of money allocated to each self-investment option. Because there was no existing scale about self-investment behaviors, it was based on the definition of self-investment and a selection of self-investment behaviors and financial investment choices, such as achieving a further degree, buying clothes, going to the gym, savings in a bank, buying a house and others.

Further details of this scale and how it was created are given in the Methods section below.

2.6 Hypotheses

Based on the positive correlation between financial self-efficacy and financial

behaviors, **hypothesis 1 is that the FSES score will be positively related to financial investment behaviors**. In other words, the higher FSE an individual has, the more money he or she will invest in savings, shares, properties, charities and student debts. Following H1, and the fact that GSE plays an important role in financial behaviors, I put forward hypothesis 2. **GSE significantly influences self-investment behaviors.** Subjects with higher GSES score will choose to invest more on body/beauty investment, hobbies, further education, travelling and entertainment. Also, **hypothesis 3 is that the GSES score is positively correlated with financial investment behaviors**. Based on the idea that self-efficacy is affected by financial knowledge and education levels, **hypothesis 4 is that an individual's education level is likely to influence self-efficacy significantly.** According to the finding that financial investment behavior of females are different from those of males and there is a significant gender difference in financial tolerance, **females will show lower FSE score than males (Hypothesis 5)**. **Hypothesis 6 is that self-investment options are influenced by whether the respondent has a partner. Hypothesis 7 is that there is a gender difference among items 1 (body/beauty investment), 2 (savings) and 4 (shares).** Based on the seven hypotheses, **hypothesis 8 is that self-efficacy may account for some of the variance in self-investment behaviors.**

3. Method

3.1 Subjects

One hundred and eighty participants were recruited in Christchurch. They were aged

between 18 and 65. The sampling was concentrated in the University of Canterbury, Bishopdale and Riccarton with 82 females and 98 males. All participants were asked to fill in a questionnaire pack to collect data about investment behaviors with 5 items for self-investment and 5 items for financial investments, the GSES and FSES, as well as some demographic variables. Participants were compensated.

3.2 Materials

In this research, the questionnaire included an investment option scale (10 items), a general self-efficacy scale (GSES) (10 items) and a financial self-efficacy scale (FSES) (6 items) (shown as *Appendix A*). The investment options scale was self-designed to estimate the percentage of investing money on each investment option. The items were determined after interviewing several people about their options and willingness to invest in themselves when they are dealing with money or plan to spend money. When the interviewee is a student or they do not have a job, the question is about their plan for their future money. Based on their answers, the scale summarized and combined into 10 items.

In the end, the self-investment options questionnaire consisted of five financial investments, including savings in the bank (item 2), investing in stock market (item 4), buying or renting a house (item 6), giving to charities (item 8) and student debts (item 10), and five options for investing in oneself and personal growth including self-image/beauty management (e.g., clothes shopping, cosmetics, spa, beauty & health products, etc.) (item 1), hobbies or training courses (e.g., painting, learning a

new language, learning a skill, learning an instrument, learning some professional knowledge, etc.) (item 3), further education (item 5), travelling (item 7) and entertainment and socializing (item 9). Participants imagined they would earn money after working (if they do not have a job), and how would they plan to divide up their money among these 10 different aspect of their life. They rated the percentage of money they would spend on each item and had to ensure that the money spent on the 10 items added up to 100%. It is clear to compare the investing rate between financial investment and self-investment for each participant, which type of investment options participants prefer and whether there is a gender difference for each option. The questionnaire included four demographic questions concerning the participant's age, gender, education level and partner. The 10 items appear in *Table 2* below.

The GSES measures the belief that individuals can achieve a goal or cope with difficulties in a certain situation or task, and included 10 closed-ended rating-scale items (see *Table 3*). Subjects rated agreement with each item on 4-point Likert scales ranging from "Not at all true" (1) to "exactly true" (4). The range of total scores of the GSE is 10 - 40, where higher scores suggest a stronger sense of perceived self-efficacy.

The FSES is a scale to measure how confident an individual is when confronted with financial issues, and includes 6 reversed scored items (see *Table 3*). Under instruction, subjects responded to each statement using a Likert-type scale: 1 = not at all true, 2 = hardly true, 3 = moderately true, and 4 = exactly true. The six items are summed up

to a total score on FSES, ranging from 6 to 24. Individuals with higher scores show stronger confidence in their financial capacity.

The questionnaire included demographic factors, such as age, gender, educational level and partner. For the sake of descriptive statistics, the variable of gender was divided into 3 categories: 1 = female, 2 = male, 3 = transgender. The variable of age was divided into 5 age groups: 1 = 18 - 25, 2 = 26 - 35, 3 = 36 - 45, 4 = 46 - 55, 5 = 56 - 65. The variable of education level was classified as follows: 1 = High School or less, 2 = Other, 3 = Bachelor's degree, 4 = Master's degree, 5 = Doctorate or professional degree. Also, the variable of partner had 2 options: 1 = partner, 2 = no partner. *Table 1* shows the frequencies of participants in each demographic category.

Table 1 Sample statistics

Demographic Factors	Categories	Percentage	Mean	SD
Gender	Female	45.6	---	---
	Male	54.4		
	Transgender	0		
Age group	18-25	46.1		
	26-35	26.7		
	36-45	13.3	30.36	11.928
	46-55	7.8		
	56-65	5.6		

Education level	1	35.6	---	---
	2	11.1		
	3	35.6		
	4	13.9		
	5	3.9		
Partner	Partner	40.6	---	---
	No partner	59.4		

3.3 Procedure

Pen and paper questionnaires were used. Eighty student participants were recruited from the University of Canterbury and the other participants (100) were recruited from the customers of a dairy in Bishopdale and from the visitors to Riccarton mall. Students participants were asked if they would like to take the questionnaire and complete it voluntarily. A poster (shown as *Appendix B*) of enrollment for research participants was hung out outside the dairy. Some participants were randomly questioned in Riccarton mall by the random access. The research was approved by the University of Canterbury Human Ethics Committee (shown as *Appendix C*).

4. Results

To analyse the data, IBM SPSS Statistics (version 22) was used to perform t-tests, Chi-square analysis, ANOVA, correlation matrices, multi-factor variance analysis,

simple effect analysis and linear regressions.

4.1 Descriptive statistics of investment choices, GSES and FSES

Table 2 gives the statistics concerning percentages of investment choices. The participants were told that their total investing money was 100% and they then filled in the percentage they ought to invest in each item. As shown, subjects spent most money on savings in the bank (19.96%) and properties (18.62%). Next on the list, 13.17% of the investing money was invested in self-image/beauty management, 10.96% on entertainment and socializing while 10.1% was spent on travelling and 9.77% on personal hobbies or training courses. Approximately, participants spent 7.24% of their investing money on further education. Shares investments and student loans were similar, at 3.53% and 3.45% separately. The least money was spent on charities, only 3.1%. Because items A1 (beauty), A3 (hobbies), A5 (education), A7 (travelling) and A9 (entertainment and socialization) were combined into self-investment choices, the total percentage of these 5 items was recorded as the self-investment percentage (SIP). Item A2 (savings), A4 (stock), A6 (properties), A8 (charities) and A10 (student debts) were merged into financial investment choices, and the total percentage of these 5 options was the financial investment percentage (FIP). As seen in Table 2, generally participants made slightly higher self-investments than financial investments. The standard deviation of SIP and FIP were the same.

Table 2 Descriptive statistics of the percentage of investment choices

Items	Mean	SD

A1. How much do you plan to spend on self-image/beauty management?	13.17	11.19
A2. How much do you plan to spend on savings in the bank?	19.96	14.40
A3. How much do you plan to spend on your hobbies or training courses?	9.77	8.79
A4. How much do you plan to spend on investing in stock market?	3.53	6.14
A5. How much do you plan to spend on education?	7.24	9.834
A6. How much do you plan to spend on buying or renting a house or houses?	18.62	15.87
A7. How much do you plan to spend on travelling?	10.16	7.71
A8. How much do you plan to spend on giving to charities?	3.13	3.64
A9. How much do you plan to spend on entertainment and socializing?	10.96	7.51
A10. How much do you plan to spend on student debts?	3.45	5.49
Percentage on self investment	51.31	17.71
Percentage on financial investment	48.69	17.71

The values of Cronbach's Alpha for the GSES (0.8) and FSES (0.8) were both high, indicating the GSES and FSES had relatively high internal consistency. In addition, GSES scores follow an approximately normal distribution. The mean was 31.19 and the standard deviation was 3.87. Most respondents had a moderately high self-efficacy. FSES scores were also approximately normally distributed with a mean of 16.08 and a standard deviation of 3.87. Individual scale item statistics were shown in *Table 3*. The FSES scores averaged over the 6 items was 2.68 which was lower than the corresponding GSES score averaged over 10 items, which may imply that participants were not generally as confident in their financial management as in

themselves. To further confirm this finding, I used a paired t-tests to compare the averages. The results was t (*df = 179*) = 37.8, $p < .001$, with the average GSES score significantly higher than the average FSES score.

Table 3 Descriptive statistics of general self-efficacy scale (GSES) and financial self-efficacy scale (FSES) items

Scale	Items	Mean	SD
GSES	I can always manage to solve difficult problems if I try hard enough.	3.33	.55
	If someone opposes me, I can find the means and ways to get what I want.	2.83	.71
	It is easy for me to stick to my aims and accomplish my goals.	3.04	.68
	I am confident that I could deal efficiently with unexpected events.	3.03	.65
	Thanks to my resourcefulness, I know how to handle unforeseen situations.	3.05	.66
	I can solve most problems if I invest the necessary effort.	3.39	.58
	I can remain calm when facing difficulties because I can rely on my coping abilities.	3.07	.78
	When I am confronted with a problem, I can usually find several solutions.	3.08	.62
	If I am in trouble, I can usually think of a solution.	3.25	.61
	I can usually handle whatever comes my way.	3.12	.68

	total	31.19	3.87
FSES	It is hard to stick to my spending plan when unexpected expenses arise.	2.15	.85
	It is challenging to make progress toward my financial goals.	2.29	.83
	When unexpected expenses occur I usually have to use credit.	2.94	1.05
	When faced with a financial challenge, I have a hard time figuring out a solution.	2.87	.79
	I lack confidence in my ability to manage my finances.	2.94	.92
	I worry about running out of money in retirement.	2.89	1.05
	total	16.08	3.87

4.2 Mean difference comparison

To compare the mean differences for four demographic variables, I used, a t-test for the variables of gender and partner, and one-way ANOVA was used for age and education level. However, the test of homogeneity of variance for the effect of age on the FSES score was not satisfied ($p\text{-value} = 0.047 < 0.05$). Therefore, age was replaced by the variable of age group. The test of homogeneity of variance for age group was satisfied.

4.2.1 Gender

The result showed that no gender difference was found in the FSES score, the GSES

score and the percentage on self-investment or financial investment.

4.2.2 Age group

The FSES score performed differently with age group. People aged 56-65 years old had a stronger confidence in their financial management than other younger people. The mean of the FSES score was 16.08. The average highest score of the FSES (18.20) was among those in the 56-65 age group while the average lowest score of the FSES (15.12) was in the 18-25 age group.

4.2.3 Education level

The score of GSES performed differently with education level ($p = .001 < .01$). The data showed that participants with a higher school degree had the highest GSES score (32.61) while those who had a master's degree had the lowest GSES score (29.44). Participants with higher school degree or other degrees (bellow bachelor's degree) had a stronger confidence in their own ability than those with higher degrees. This thought-provoking finding will be discussed below.

4.2.4 Partner

The variable of partner influenced self-investment and financial investment choices significantly ($p = .044 < .05$) as well as the FSES score ($p = .029 < .05$). Participants without partners invested more money in themselves than those with partners while they spent less on financial investments. Moreover, participants with partners had a higher score in FSE scale than those without partners, indicating they had a greater

sense of confidence in managing their financial affairs and controlling their financial behaviors.

4.3 Strength of effects variance analysis and simple effect analysis

To find the strength of demographic variables together influenced self-investment percentage (SIP), financial investment percentage (FIP), GSES score and FSES score, partial eta-squared values (η^2) were calculated, and shown in *Table 4*.

Table 4 Partial Eta Squared (η2) of Main & Significant Interaction Effects

Source \ Dependent variable	self-investment percentage	Financial investment percentage	GSES score	FSES score
gender	.008	.008	.002	.009
education	.024	.024	.035	.025
partner	.009	.009	.015	.003
age group	.063	.063	.086*	.068
education * partner	.094*	.094*		
education * age group	.146*	.146*		
partner * age group	.080*	.080*		
partner * education * age group			.064*	
partner * education * gender				.050*
partner * age group * gender				.064*
education * age group * gender				.100*

Note: only the statistically significant interactions are shown.

* Denotes statistical significance <= 5%.

Of the four main effects, only the variable of age group accounted for a significant percentage, 8.6% of the GSE score. The interactions of education and partner, education and age group, as well as partner and age group, also affect self-investment and financial investment behaviors significantly. Partial Eta Squared (η^2) is a measurement of effect size, which can tell us how strong effects are, comparing them within or across analyses. Although the η^2 of the interaction of education and partner for both SIP and FIP is less than 10%, this is not negligible. Analogously, a bit of variance in SIP or FIP is attributed to the interaction of education and age group, and less variance in SIP or FIP is related to the interaction of partner and age group. The ternary factor interaction of partner and education and age group accounts for 6.4% GSES score. Moreover, quite few of the FSES score is attributed to the interaction of partner and education and gender, similar amount of the FSES score is related to the interaction of partner and age group and gender, 10% FSES score is explained by the interaction of partner and age group and gender. Since there are some strong interactions, the follow-up step is to run simple effects tests. A simple effects test compares the difference among subjects for various levels of one independent variable with other variables hold constant.

4.3.1 Significant simple effects results for self-investment percentage (SIP) and financial investment percentage (FIP)

Participants who held a doctorate or professional degree without partners put more money (36%) into self-investment behaviors than those with partners who were at the same education level. Relatedly, the former invested less money (a difference of 36%) in financial investments than the latter. Since the investment options scale consists of self-investment choices and financial investments and the two must add up to 100%, the results of SIP and FIP are exactly the reverse. Only SIP or FIP of the following results is reported. Subjects who had “other” educational levels without partners invested more money (21%) in self-investment choices than those with partners who were at the same education level. Participants at 18-25 years old with “other” education levels invested 29% more in SIP than those with “other” education levels from 36 to 45 and 37% more than subjects aging at 46-55 with the same education level. For the younger subjects (18-25), those had “other” education level put 23% more in SIP than those who held a high school or less degree. For the older age group (46-55), participants with partners had 27% FIP less than those without partners. For participants who do not have partners, people aged 46-55 invested 38% FIP more than those from 18-25 and 40% more than 36-45 age group. In other words, younger participants without partners preferred to spend more money on themselves rather than on financial investments.

4.3.2 Significant simple effects results for the general self-efficacy (GSE) and

financial self-efficacy (FSE) scales

Results of simple effects tests for the GSES and FSES scales are complicated. For those who are aged at 26-35 with a partner, education level is an important factor. Participants with a master's degree had lower scores than those who held a bachelor's degree on GSES (a difference of 10.17) but more than those who nominated the "other" education level (a difference of 9.0). For the participants who are aged 18-25 without a partner, those with high school education had a higher GSES score than those who held a bachelor's degree (4.5). For subjects with Master's degrees aging for 36 to 45, those without partners had higher GSES scores than those who had partners (9.5). Furthermore, for female participants without partners, those with a high school or less degree had lower FSES scores than those who had a Bachelor's degree (4.1), Master's degree (5.4) or "other" education level (5.3). In addition, for female subjects with high school or less education level, those with partners had a higher FSES score than those without partners (3.5). For respondents who had high school education level without partners, females had lower FSES scores than males (3.1). Male participants aged 36-45 without partners had a higher FESE score than male participants with partners at the same age group (4.8).

4.4 Correlations

Table 5 shows the correlations between variables. There is no significant correlation between the variable of gender and any other variable. The negative correlation between age and SIP indicated that the older participants were, the less they would

invest in self-investment choices. Conversely, older subjects put more money into financial investments. There is a significant positive correlation between age and FSES score. Older people had more confidence in their own ability in finance management. The correlation between age and partner reflected the fact that older people were more likely to have a partner. The correlation between the education level and GSES score indicated that respondents with a higher education level had less confidence in their own capacity. Participants without a partner invested more money in self-investment options and less in financial investments.

Table 5 General correlation matrix

	gender	age	education	partner	Percentage on self--investment	Percentage on financial investment	GSES score
age	.13						
education	-.02	-.14					
partner	-.01	-.45**	-.002				
Percentage on self-investment	-.10	-.16*	.05	.19**			
Percentage on financial investment	.10	.16*	-.05	-.19**	-1.0**		
GSES score	.07	.11	-.30**	-.01	-.14	.14	
FSES score	.11	.24**	.14	-.12	-.14	.14	.04

Note:

[*] Denotes statistical significance <= 5%.

[**] Denotes statistical significance <= 1%.

The correlation of each item in the investment options scale with the different independent variables is shown as seen in *Table 6*. It is clear that female participants invested more money in self-image or beauty management and less in savings in the bank, entertainment and socializing than males. Older participants put more money into savings and less into further education and student debts than the younger. Participants with higher education levels invested (yet more) money in further education and less in student debts. Participants without partners invested more money in hobbies, education and student debts and less in properties (buying or renting a house). Those who had stronger confidence in their own ability generally put more money in shares and charities while less in entertainment and socializing. A participant who was more confident in his or her financial management capacity would put more money on savings in the bank and less in education and student debts. Not all of these findings are consistent with previous studies.

Table 6 Correlation matrix in the investment options scale

	gender	age	education	partner	GSES score	FSES score
1. beauty	-.244**	-.094	-.142	.049	.068	-.120
2. savings	.180*	.160*	-.088	.003	.008	.262**
3. hobbies	.106	-.051	.073	.168*	-.020	-.050

4. stock	.067	-.063	-.098	-.030	.176*	-.174*
5. education	-.097	-.274**	.165*	.210**	-.054	-.079
6. properties	-.064	.185*	.162*	-.321**	.030	.085
7. travelling	-.018	.123	.072	-.079	-.085	.098
8. charities	-.024	.083	-.025	-.012	.256**	-.086
9. entertainment	.153*	.047	-.122	-.007	-.248**	-.098
10. student debts	-.029	-.414**	-.168*	.336**	-.026	-.220**

Note:

* Denotes statistical significance <= 5%.

** Denotes statistical significance <= 1%.

4.5 Linear regression

4.5.1 Linear regression for SIP/FIP

I used a multiple linear regression to predict SIP from all the other variables (except FIP, which, as already noted, is simply the inverse of SIP in this study). So, SIP was the dependent variable and gender, age, education level, partner, GSES score and FSES score were predictors. As seen in *Table 7*, the original model only explains 7.7% of the variance in the data and no variable was statistically significant ($p < .05$). All values of variance inflation factor (VIF) are 1-1.5, suggesting there is no multicollinearity in the test. The following step was to identify outliers and omit them.

Table 7 Linear regression analysis - the original model

	R Square	F	Sig.	Coefficients
Model	.077	2.41	.002	
(Constant)			.000	71.69
gender			.330	-2.57
age			.629	-.06
education			.052	0.30
partner			.129	5.78
GSES score			.174	-.54
FSES score			.797	-.48

Note:

Dependent variable : self-investment percentage (SIP) (%)

* Denotes statistical significance <= 5%.

** Denotes statistical significance <= 1%.

After observing the histogram and the residuals plot, 23 cases were regarded as outliers and deleted because their standardized residual values were above about 3 (or less than -3). The final linear regression model with the reduced data set is shown in *Table 8*.

Table 8 Linear regression analysis - the revised model

	R Square	F	Sig.	Coefficients

Model	.194	6.03	.000	
(Constant)			.000	85.01
gender			.000	-5.81
age			.015	-.08
education			.425	0.80
partner			.001	9.43
GSES score			.008	-.91
FSES score			.020	-.75

Note:

Dependent variable: self-investment percentage (SIP) (%)

* Denotes statistical significance <= 5%.

** Denotes statistical significance <= 1%.

The revised model explained almost a fifth of the variance in the sample. Four variables (gender, partner, GSES score, FSES score) significantly influenced SIP. (Of course, they would have the reverse effects on FIP.). The variables of gender, age, GSES score and FSES score were negatively correlated with SIP. SIP was positively correlated with the variables of education and gender. In this model, when the subject is male, his SIP would decrease by 5.8% compared to a female. When the age of a person increases one year, SIP decreases by 0.08%. For education level, when participants move up an education level, their SIP increases by 0.8%. A participant without a partner has an increase of 9.4% SIP over a participant with a partner. When

the GSES and FSES scores increase one point, SIP reduces 0.91% and 0.75% respectively. It is important to note that when the GSES or FSES score increases, SIP is reduced. In other words, if a subject has stronger confidence in himself or herself or the financial management capacity, less money is invested in self-investment behaviors and more in financial investments. In short, the final regression model for SIP is: y (SIP) = 85.01 - 5.81*gender - .08*age + .8*education level + 9.43*partner - .91*GSES score - .75*FSES score. By the same method, the regression model for FIP is : y (FIP) = 15 + 5.81*gender + .08*age - .80*education level - 9.43*partner + .91*GSES score + .75*FSES score.

4.5.2 Linear regression for the GSES and FSES score

Additionally, to explore the relationship and strength of items in investment scale for the GSES and FSES score, linear regression was performed. The regression models for the GSES score (*model 1*) and the FSES score (*model 2*) were illustrated in *Table 9* respectively.

Table 9 Linear regression model for the GSES score

Model	R Square		Coefficients
1	.153	(Constant)	31.978
		1. beauty	.022
		2. savings	-.006
		3. hobbies	.007
		4. shares	.062

		5. education	-.043
		7.travelling	-.023
		8. charities	.249**
		9. entertainment	-.128**
		10. student debts	-.021
2	.156	(Constant)	17.428
		1. beauty	-.040
		2. savings	.041
		3. hobbies	-.025
		4. shares	-.102*
		5. education	-.020
		7.travelling	.041
		8. charities	-.052
		9. entertainment	-.060
		10. student debts	-.140**

Note:

Model 1 - Dependent variable: the general self-efficacy score (GSES)

Model 2 - Dependent variable: the financial self-efficacy score (FSES)

* Denotes statistical significance <= 5%.

** Denotes statistical significance <= 1%.

As it illustrated, the percentages of investing money on charities and entertainment

were two significant predictor for the GSES score. Charities was positively correlated with the GSES score while entertainment was negatively related to self-efficacy. Meanwhile, the investments of shares and student debts could explain some variance of the FSES score. These two items both had a negative correlation with the FSES score.

5. Discussion

This paper investigated investment choices for people in Christchurch, New Zealand with a survey. The relationships between financial self-efficacy and financial investment behaviors, financial self-efficacy and self-efficacy, as well as self-efficacy and self investment behaviors, were explored. A linear regression model was used to predict investment behaviors by financial self-efficacy and self-efficacy. To the best of my knowledge, there are no previous studies in New Zealand using the FSE scale, predicting the relationship between FSES and financial investments, or between GSES and self-investment behaviors.

Hypothesis 1: the FSES score will be positively related to financial investment behaviors.

The result showed that although the FSES score is not significantly correlated with the total percentage of financial investment options, the FSES score was correlated with three financial investment options: savings, shares and student debt, suggesting that the impact of FSE on financial investments behaviors is limited. Moreover,

compared with previous research, more financial investment options were included in this thesis rather than only savings, shares and debt.

While these results were unexpected, they were in line with previous research from Ismail and his colleagues (2017). They found that FSE was not correlated with financial behaviors significantly, while GSE was correlated with financial behaviors. They suggested that their findings contradicted previous studies because the composition of respondents was not diverse and the size of sample was not wide enough. These limitations might also be present in this study.

Those who were more confident in their financial management capacity (higher FSE score) invested more money in savings and less in shares and student debts. Montford and Goldsmith (2016) suggested that females with higher FSE spent more in financial investment, mortgage and savings in the bank and less in debt products. Asebedo and Seay (2016) found that FSE was positively correlated with savings behavior among pre-retirees (people aged 50 - 70 years old). My findings expand these findings so as to focus not only on females and elderly people but also on males and younger people. The result of this study indicated that people with higher FSE avoid investing in debts while they were more likely to invest in savings. Previous evidence (Asebedo, 2016; Asebedo & Seay, 2018; Rahmawati & Asandimitra, 2018) also existed that higher FSE led to a higher proportion of savings. However, some of this work also suggested higher FSE was related to higher risk financial behavior. In this paper, higher FSE was not correlated with the higher risk financial investment in shares.

Hypothesis 2: GSE significantly influences self-investment behaviors.

The GSES score has a limited relationship to self-investment behaviors. The total self-investment percentage was not correlated with the GSES score but the GSES score did related to one self-investment item: entertainment and socialization.

People with higher GSE spent less in entertainment and social activities. Given that participants with higher self-efficacy feel more confident in themselves, it is possible they prefer tasks with more challenge than hanging out with friends or going to a party. A survey in South Korea (Jeong & Kim, 2009) recruited 600 students in middle and high schools, showing that general self-efficacy was negatively correlated with game addiction. Self-efficacy was positively related to social activities with friends and parents. A cross-cultural study (Perkins, Multhaup, Perkins & Barton, 2008) suggested the self-efficacy significantly influenced the participation in social and physical activities among older people (aged 63-92) in Spain and United States. The higher social self-efficacy an individual has, the greater possibility the individual participates in social activities.

In future studies, a specific scale like FSES in the area of self-investment could be developed to measure self-efficacy in the self-investment area. A standard list of self-investment behaviors could be estimated too. This thesis included ten common self-investment options according to the answers of pre-interview and the definition of self-efficacy. The scale used here is still in its infancy and this may be a limitation for my survey. The composition of the self-investment options could also have been

an obstacle to investigating the correlation between self-efficacy and self-investment.

Hypothesis 3: the GSES score is positively correlated with financial investment behaviors.

The result of the present survey is consistent with Ismail and his colleagues' finding (2017) that GSE was correlated with financial behaviors.

More specifically, the GSES score was correlated with investment in shares, charities and entertainment or socialization. People with higher self-efficacy were inclined to spend more on charities. Self-efficacy has previously been shown to be a good predictor of blood donation (Giles, McCleanahan, Cairn & Mallet, 2004). A study (Gini, Albiero, Benelli & Altoe`, 2008) found there was a link between high level of self-efficacy and helping behaviors. Sharma and Morwitz (2016) suggested that more confidence in one's capability in the contribution increased more possibilities of financial donation. They also found that increased self-efficacy led to higher levels of willingness to donate to multiple beneficiaries.

In this study, participants with higher GSES scores invest more in shares. A study (Chatterjee, Finke & Harness, 2011) found that, compared with people with low self-efficacy, people with high GSE were more likely to invest in shares. Participants with higher GSE invest in assets with higher risky returns. The present result is consistent with this finding, which supports the idea that the higher GSE score leads to some positive financial investment behaviors.

Hypothesis 4: an individual's education level is likely to influence self-efficacy significantly.

As hypothesized, a person's level of education has an impact on self-efficacy. However, contrary to previous research, participants with a higher education level had less confidence in themselves. A psychologist and economist, Daniel Kahneman, proposed in his book that people were overconfident and put too much faith in their intuition when they made a decision. He stated "The world in our heads is not a precise replica of reality; our expectations about the frequency of events are distorted by the prevalence and emotional intensity of the messages to which we are exposed" (Kahneman, 2011, p. 138). People are trapped in an exaggerated sense of how well we understand the world because those who have learned more have developed an illusion of infinite amplification of their skills and become impractical and overconfident. The more they learn, the more they realize that they do not know. This might be an explanation for my finding. To some extent, participants with a higher education level have learnt more and may wind up with less confidence in their capacity than those who have a lower education level. Another explanation may be that the sample composition was not diversified enough. The majority of participants' education levels were less than high school (35.6%) or bachelor's degree (35.6%). This might contribute to the lack of accuracy and this finding could be explored more in future studies.

Hypothesis 5: females will show lower FSE score than males.

This hypothesis was not upheld. Some previous studies indicated that a gender gap existed in some investment behaviors and that FSE was an important factor in the gender difference. Nevertheless, in this study no gender difference was found in FSE scores or the total financial investment percentage.

Ismaill, et al. (2017) analysed the gender difference in investment behavior from three different aspects: decision making process, risk preference and investment portfolio. They found that, although there were some gender differences in investing processes, there was no difference in the quality of portfolios. The result in this thesis is also consistent with the Montford and Goldsmith's finding (2016) that females and males had similar levels of financial knowledge and financial decision making. It supported that financial decision making do not very by gender. To some extent, these indirect evidence might suggest no gender difference in FSES score. The Financial self-efficacy scale is a general measurement for participants to estimate how much confidence they have in their financial management capacity, not for particular financial behaviors. Thus, although there may be a gender difference in financial risk aversion, there may be no gender difference in financial self-efficacy.

Hypothesis 6: self-investment options are influenced by whether the respondent has a partner.

Consistent with this hypothesis, the data analysis revealed that participants without a partner invested more in self-investment options than those with a partner. The five items of self-investment in this questionnaire focused on personal demand

rather than family demand. Some participants reported that they would change their answers if they were asked about their family or the couple. People with partners are concerned for both themselves and their partners or the whole family. To be more specific, the result showed that individuals without partners were prone to spend more time and money on their own hobbies, training courses and further education to enrich their lives and to make themselves more attractive, adding value to themselves over the time. There is a possibility that people without partners have more leisure time and energy to do what they enjoy. Also, they may invest more in themselves to increase their value, which is helpful to attract others. Meanwhile, people with partners tended to invest less in debt but more in buying or renting a house. In this survey, almost half of the participants were students and most of them did not have partners. Student debts were chosen mainly by students who were participants without partners. Kemp's research (2018) suggested that the vast majority of New Zealanders save by investing in real estate. People with partners might be concerned more about their future with partners than only themselves. People might change their consumption and investment plan when they have partners.

Hypothesis 7: there is a gender difference among items 1 (body/beauty investment), 2 (savings) and 4 (shares).

As hypothesized, there was a gender difference in body and beauty investment and savings. Consistent with past studies (Mush & Cash, 1997; Abbott & Barber, 2010; La Rocque & Cioe, 2011), females invested more money in body-image and beauty

production than males. This is probably because women have a greater sense of body dissatisfaction. For example, a survey of adolescents in Thailand reported that males (aged 14-22) spent more money on entertainment, going to the cinema and sports while females (14-22) spent more on cosmetic production and gifts to friends (Sereetrakul, Wongveeravuti & Likitapiwat, 2013).

There is a gender difference in savings behavior but not in shares. Because previous literature (Charness & Gneezy, 2012; Neelakantan, 2010) indicated that females had stronger risk aversion and less risk-taking than males, which would affect their investment behaviors, females might prefer less risky investment behaviors, such as savings rather than shares. Sereetrakul, Wongveeravuti and Likitapiwat's exploratory study (2013) in Thailand indicated that there was no gender difference in savings behavior among 455 students (aged 18-21). It also found that female students had more positive attitude towards savings behavior. However, in this paper, the result showed that males invested more money in savings than females, which was not consistent with the past evidence. Also, no gender difference was found in shares behavior. It is noted that New Zealanders generally are not willing to invest in shares (Kemp, 2018). The result might also be due to the size of sample and the large percentage of students (aged 18-25).

Hypothesis 8: self-efficacy may account for some of the variance in self-investment behaviors.

The final linear regression model showed that some variance in self-investment behaviors could be explained by GSE. To some extent, GSE has an impact on self-investment behaviors although it is not much.

Finally, in the revised regression model predicting self-investment percentage (SIP) and financial investment percentage (FIP), the effect of the GSES score was greater than that of the FSES score. The biggest effect came from whether the participant had a partner. Whether participants had partners has a strong impact on their investment selections and behaviors.

Beyond the hypotheses, I also found a gender difference in entertainment and leisure-time activity investments. A study in Brazil (Azevedo et al., 2007) indicated that men were more active than women and spent more time on moderate-intensity and vigorous-intensity levels of leisure-time activities while there was no gender difference in mild exercise (walking). Overall, males invested more time and energy in leisure-time physical activities than females. Similar findings exist for children. A study in Denmark (Klinker, Schipperijn, Christian, Kerr, Ersbøll & Troelsen, 2014) used accelerometer and Global Positioning System (GPS) data to find that boys spent more time and performed more actively in physical education, sports facilities, urban green space and school grounds than girls. However, the American Bureau of Labor Statistics Consumer Expenditure Survey published 2015-2016 showed that females and males spent similar amounts in one year on entertainment. Men and women are likely to spend on different categories of entertainment. Perhaps future research

might examine different categories of leisure time activities and socialization in the context of self-efficacy.

Older participants invested more money in savings in the bank. This seems an intuitive finding because older people have had more time to accumulate more savings. Also, older people may engage in more saving behaviors for future retirement (Mahdzan & Tabiani, 2013). A study (Lusardi & Mitchell, 2011) indicated that those under 35 years old had lower financial knowledge than older people. A review (Atkinson, Messy, Rabinovich & Yoong, 2015) found a significant correlation between financial knowledge and long-term savings and investment behaviors as well as wealth accumulation. A study by Grinstein-Weiss, Guo, Reinertson and Russell (2015) found that, although young people and older people were given the same amount of financial education, the savings outcomes of older participants were superior to those young people. And for those subjects above 35 years old, savings outcomes were positively correlated with how much financial education they received, which was not found in the younger age group (<35 years old). Perhaps the motivation and need for financial education in the older age group (>35 years old) were greater than the younger group.

5.1 Implications

This thesis attempted to summarize several general items of self-investment and financial investment behaviors to extend the relationship between financial self-efficacy and financial investments, exploring the correlation between

self-efficacy and self-investment behaviors. The results provided some evidence for hypotheses but were limited. Moreover, investment behaviors may be different in New Zealand. For future research, the size of sample could be bigger and a new self-efficacy scale in investment area could be developed. Also, the scale of investment behaviors could be improved.

5.2 Limitations and suggestions for the future

As discussed above, firstly, the sample was relatively small and its composition was not representative. These may be the main reasons that many of the relationships found were not strong. The age and education level distributions and education levels in particular were not representative. More than 70% of the participants were between 18 and 35 years old. A large number of participants were students (18-24) from the University of Canterbury. Moreover, there was a geographic range limit because my sampling was centered on Riccarton and Bishopdale. On the other hand, the eventual sample did have reasonable gender, age and educational variation.

Secondly, some important factors were not included in this study, in part because of the difficulties of sampling and surveying. It would have been good to know, for example, how much the participants actually knew about financial matters. Some evidence (Heckman & Grable, 2011) indicates that financial knowledge is positively correlated with FSE. A questionnaire for measuring financial knowledge (*International Network on Financial Education*, 2011) could be used in further studies.

Moreover, income is also an important factor for investment behaviors. Evidence (Arianti, 2018) indicated that there is a significant difference between people with low income and people with high income in financial investment behaviors. However, it is not easy to get valid income measures.

Because the variable of partner showed a strong effect, another investment survey for a whole family could be explored in the future. One could ask, for example, about the family's investment in beauty and appearance products (orthodontistry for children for example). Another related variable could be added in this further study. "Do you have a child? If so, how many children do you have?"

Another important factor may be ethnicity. People with different ethnicities may have different attitudes towards money, and people from different cultural backgrounds may have different allocations of portfolios (Albaity & Rahman, 2012). Amatucci and Crawley's study (2011) also indicated that FSE was significantly correlated with ethnic differences. To be more specific, ethnicity has an influence on education investment, financial risk tolerance (Yao, Gutter & Hanna, 2005) and credit attitude (Borden, Lee, Serido & Collins, 2008).

Chitra and Ramya (2011) found that the effect of personality traits was stronger than that of demographic variables on investment choices. It suggested that investors' personality traits influenced decision making and investment portfolios. Therefore, a personality trait scale could be added to explore the relationship between investment behaviors and personality traits. Further studies could consider these factors in the relationships between self-efficacy and self-investment behaviors.

5.3 Conclusion

The present study extended previous research on investment behaviors with financial investment and self-investment and explores the effect of self-efficacy and financial self-efficacy in investment behaviors. The results showed that general self-efficacy was positively correlated with investment in shares, charities and negatively correlated with entertainment. Financial self-efficacy was correlated positively with investment in savings, student debt and negatively correlated with shares. Some demographic variables were also included in this study. The data showed that whether people had a partner significantly influenced financial investment and self-investment percentage. A gender difference was found in saving behaviors and body/beauty investment. This findings provide evidence that self-efficacy and financial self-efficacy play an important role in investment behaviors.

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Appendix A

If you had money to spare, how do you manage/ plan to manage your money?

Usually, we spend money on different aspects of life:

1. Financial investment.

   E.g. savings in the bank, investing in stock market, properties, etc.

2. Self-investments (spend money and time to make yourself more valuable and earn a better future).

   E.g. further education, new skill sets, fitness, beauty & health products, etc.

Part A

Imagine you would earn money after working and how would you plan to manage your future money in different areas of life. / Think how would you manage your own money in different areas of life.

Please rate the percentage of investing money on each of the following, and <u>make</u> <u>ensure that each item adds up to 100%.</u>

1. How much do you plan to spend on self-image/beauty management? (e.g., clothes shopping, cosmetics, spa, beauty & health products, etc.)

   _____

2. How much do you plan to spend on savings in the bank? _____

3. How much do you plan to spend on your hobbies or training courses? (e.g., painting, learning a new language, learning a skill, learning an instrument, learning some professional knowledge, etc.) _____
4. How much do you plan to spend on investing in stock market? _____

5. How much do you plan to spend on education? (e.g., continue to study for a further degree, study abroad, etc.) _____

6. How much do you plan to spend on buying or renting a house or houses?

   _____

7. How much do you plan to spend on travelling? _____

8. How much do you plan to spend on giving to charities? _____

9. How much do you plan to spend on entertainment and socializing? (e.g., going to a concert, going out to dinner with friends, etc.) _____

10. How much do you plan to spend on student debts? _____

Part B

	Not at all true	Hardly true	Moderately true	Exactly true
1. I can always manage to solve difficult problems if I try hard enough	☐	☐	☐	☐
2. If someone opposes me, I can find the means and ways to get what I want.	☐	☐	☐	☐
3. It is easy for me to stick to my aims and accomplish my goals.	☐	☐	☐	☐
4. I am confident that I could deal efficiently with unexpected events.	☐	☐	☐	☐
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	☐	☐	☐	☐
6. I can solve most problems if I invest the necessary effort.	☐	☐	☐	☐
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	☐	☐	☐	☐
8. When I am confronted with a problem, I can usually find several solutions.	☐	☐	☐	☐
9. If I am in trouble, I can usually think of a solution	☐	☐	☐	☐
10. I can usually handle whatever comes my way.	☐	☐	☐	☐

Part C

	Not at all true	Hardly true	Moderately true	Exactly true
1. It is hard to stick to my spending plan when unexpected expenses arise.	☐	☐	☐	☐
2. It is challenging to make progress toward my financial goals.	☐	☐	☐	☐
3. When unexpected expenses occur I usually have to use credit.	☐	☐	☐	☐
4. When faced with a financial challenge, I have a hard time figuring out a solution.	☐	☐	☐	☐
5. I lack confidence in my ability to manage my finances.	☐	☐	☐	☐
6. I worry about running out of money in retirement.	☐	☐	☐	☐

Gender:

Female Male

Transgender Other

Age: _____

Education:

High School or less Others

Bachelor's degree Master's degree

Doctorate or professional degree

Partner:

Partner No partner

Appendix B

SELF-EFFICACY AND SELF-INVESTMENT BEHAVIORS: RECRUITING PARTICIPANTS

Lead Researcher: Zichun Wang

My name is *Zichun Wang* and I am a postgraduate student from the Department of Psychology at University of Canterbury in Christchurch. As a part of my degree course, I am undertaking a research project for my Master dissertation.I am looking for volunteers to participate in the project. Everyone who is over 18 years old is welcome to take part. This paper investigates the relationship between self-efficacy and self-investment behaviors in Christchurch, New Zealand. Moreover, to extend these findings, this paper explores the relationship between self-efficacy and self-investment behaviors via the general self-efficacy scale and self-investment behaviors scale. Besides, this paper investigates which self-investment options that subjects will prefer in Christchurch. Besides, the survey compares the percentage of self-investment behaviors and financial investments for subjects.

The study will take place in Christchurch. Your participation will last 10 minutes to 15 minutes.

As part of participating, you will be asked to fill in a questionnaire, including 5 basic demographic items and 26 questions. Participation is voluntary and you have the right to withdraw at any stage without penalty.

You will be paid for your participation in this research as follows: $ 5 voucher for cafes in the university or $ 5 shopping voucher.

If you are interested in participating in this study, please contact *Zichun Wang* at 02108712089.

Appendix C

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Rebecca Robinson
Telephone: +64 03 369 4588, Extn 94588
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2019/79/LR

22 October 2019

Zichun Wang
Psychology, Speech and Hearing
UNIVERSITY OF CANTERBURY

Dear Zichun

Thank you for submitting your low risk application to the Human Ethics Committee for the research proposal titled "Self-efficacy and Self-investment behaviour".

I am pleased to advise that this application has been reviewed and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 15th October 2019.

With best wishes for your project.

Yours sincerely

Dr Dean Sutherland
Chair, Human Ethics Committee